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INTRODUCTION

Cognitive impairment in epilepsy: State of affairs and clinical relevance

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The consequences of epilepsy are often as serious as having the disorder itself. One particularly important consequence is the impairment of cognitive function. Cognitive function is a higher order behavior—that is, the capacity of the brain to program adaptive behavior, solve problems, memorize information, and focus attention.[1] Epilepsy is a symptom of ictal and interictal brain dysfunction. Hence, it seems obvious that cognitive impairment develops as a symptom secondary to the epilepsy. Memory impairment, mental slowing, and attentional deficits are the most frequent cognitive disorders associated with epilepsy.[2,3] Sometimes, individual patients find these cognitive consequences more debilitating than the actual seizures.

Although the exact cause of cognitive impairment in epilepsy has not been fully explored, it is clear that three factors are involved: the syndrome, that often also includes the etiology, the seizures, and the "central" side effects of treatment.[4]

In October 2005 a group of Dutch and Flemish clinicians and researches met in the city of Maastricht in The Netherlands in an attempt to review the existing evidence in this field. Three articles in this special issue cover these areas. An additional article covers the issue[5] whether cognitive complaints about the medication are valid and can be used in clinical practice.

Furthermore a topic related to seizure activity is whether epileptiform EEG discharges alone can cause cognitive impairment. This is also covered by a specific topic.

When evaluating these factors, clinicians must realize that, in practice, most cognitive problems have a multifactorial origin and that the three aforementioned factors, combined, are responsible for the "makeup" of cognitive problems in the majority of patients.[6,7] Moreover, these three factors are related. This can cause therapeutic dilemmas when seizure control can only be achieved with treatments that are associated with cognitive side effects.

Therefore, the overall impact of these factors in individual patients is highlighted in a specific chapter illustrating the clinical relevance of cognitive impairment in case histories.

Of all types of medical treatment, Vagus Nerve Stimulation (VNS) offers a promising option without cognitive side effects; as some studies claim even an option for cognitive improvement.[8]

Finally, treatment is not always medical management but sometimes also rehabilitation in the form of neuropsychological training. A specific

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chapter covers the need and possibilities of memory training.

This special issue of seizures therefore offers a comprehensive overview of our knowledge on cognitive impairment in epilepsy.

References

1. Rapin I. *Children with brain dysfunction: Neurology, cognition, language, and behavior*. New York, NY: Raven Press; 1982
2. Dodson WE, Trimble MR. *Epilepsy and quality of life in epilepsy*. New York, NY: Raven Press; 1994.
3. Aldenkamp AP, Dreifuss FE, Renier WO. *Epilepsy in children and adolescents*. New York, NY: CRC-Press Publishers; 1995.
4. Dodson WE, Pellock JM. *Pediatric epilepsy: Diagnosis and treatment*. New York, NY: Demos Publications; 1993.
5. Verhoeff NPLG, Aldenkamp AP, Overweg J, Van Royen EA, Verbeeten Jr B, Weinstein H. Memory complaints, memory disorders and focus localization in patients with partial epilepsy. *Seizure* 1992;**1**:149—56.
6. Aldenkamp AP, Van Donselaar CA, Flamman H, Lafarre DLW. Psychosocial reactions to the epilepsy in an unselected group of patients with epilepsy under treatment in general hospitals. *Seizure* 2003;**12**:101—10.
7. Aldenkamp AP, Van Donselaar C. Treatment of epilepsy in general hospitals: do patients and neurologists agree on success or failure? *Seizure* 2003;**12**:523—8.
8. Majoie HJ, Berfelo MW, Aldenkamp AP, Renier WO, Kessels AG. Vagus nerve stimulation in patients with catastrophic childhood epilepsy, a 2-year follow-up study. *Seizure* 2005; **14**(1):10—8.